

# Depression as a Risk Factor for HIV Infection

REVIEW

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## Abstract

Major depression is the most common psychiatric diagnosis in Human Immunodeficiency Virus (HIV). However a few studies have focused on clinical depression as a risk factor for HIV infection. There are evidences to show that individuals with depressive symptoms can be predisposed to diseases such as HIV infection. Literature point out that the negative influence of depression as a risk factor for HIV can be explained because physical deterioration or depression can result in fatigue, physical impairment, and loss of motivation and self-confidence to engage in food and income generating activity. Other authors point out that this increased risk is thought to be due to high rates of substance use including injection drug use (IDU), risky sexual behavior, sexual victimization, and prostitution. It's consensus that are needed social support for HIV-infected patients that includes treatment for depression and substance abuse. Screening of depression should also be conducted regularly to provide a full psychiatric profile to decrease the risk of depression and improve quality of life in this population.

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## Keywords

Depression; HIV; Risk Factor.

## Epidemiology

Major depressive disorder is a chronic and disabling mental illness [1], worldwide the fourth leading illness causing functional disability [2, 3], associated with increased mortality and shortened lifespan [4, 5].

In 2011, it was estimated that more than 1.1 million people were living with HIV/AIDS and 50,000 people were newly diagnosed with HIV in the United States [6]. According to the World Health Organization and United Nations Program on HIV/ AIDS (UNAIDS), 35.3 million people were HIV positive at the end of 2012, with 2.3 million new infections per year and 1.3 million deaths per year due to AIDS [7].

Major depression is the most common psychiatric diagnosis in Human Immunodeficiency Virus (HIV) with incidence rates estimated from 5% and 42% up to 20% across the lifespan [8]. In a large nationally representative probability sample of persons living with HIV in the USA, 37% screened positive for depression using a self-report [9, 10]. In Sub-Saharan Africa the prevalence of around 8% [11]. HIV-positive individuals are at a twofold to fivefold greater risk for depression than are HIV-negative individuals [12]. However, from a review of the current literature, it appeared that a few studies have focused on clinical depression as a risk factor for HIV infection. Most of the researches, in fact, have assessed depressive symptoms in patients who have already received HIV diagnosis [13].

### Depression as a risk factor for HIV

There are evidence to show that individual with depressive symptoms can be predisposed to diseases such as HIV infection [14], diabetes, and even death from suicide [15, 16].

In multivariable models, individuals reporting schizophrenia (adjusted prevalence ratio = 1.68, 95% confidence interval = 1.33-2.13), bipolar disease (1.58, 1.39-1.81), and depression and/or anxiety (1.31, 1.25-1.38) were more likely to be tested for HIV than persons without these diagnoses [17]. Wu et al [18] tried to identify vulnerable subgroups within the severely mentally ill population at elevated risk for HIV infection, administering the Colorado Symptom Index to 228 HIV positive and 281 HIV-negative subjects. The authors have found that a tool score  $\geq 30$  was associated with a 47 % increased risk for HIV infection.

Among 61,128 participants of the 2008 Behavioral Risk Factor Surveillance System survey, 65 years of age who responded to the question about HIV risk behaviors, 1,475 (3.4% of weighted sample) reported they had one or more such behaviors in the preceding year. For male respondents, the prevalence of current major depression was 6.1% (95%

CI: 3.9, 9.5) among 637 who reported having one or more HIV risk behaviors and 3.0% (95% CI: 2.6, 3.4) among 23,142 who did not report having such behaviors ( $p = 0.03$ ) [19]. Vujanovic et al [20] reports a series of hierarchical and logistic regression analyses was conducted and Depressive symptoms were significantly incrementally associated with worry about HIV infection.

### Depression as a promoter of risk behavior for HIV

In the context of HIV, the negative influence of depression as a risk factor can be explained because physical deterioration or depression can result in fatigue, physical impairment, and loss of motivation and self-confidence to engage in food and income generating activity [21]. For other authors [22, 23] this increased risk is thought to be due to high rates of substance use including injection drug use (IDU), risky sexual behavior, sexual victimization, and prostitution.

On sexual risk behavior, there is evidence that rates of unprotected sex are higher among women than men – respectively, 56% and 43% of patients with severe mental illnesses in the last three months in the USA [24]. Gender-based inequalities, including cultural values (e.g., men should have many partners, women should be monogamous), socioeconomic context (e.g. unequal access to education, employment, increased violence, and restricted reproductive rights among women) which potentially place women at a disadvantage for negotiating safer sex or refusing unwanted sex, can partially explain differential rates of unprotected sex reported among men and women [25].

The findings of Tsai et al [26] suggest that forced sex is associated with adverse mental health outcomes among HIV-positive women in rural Uganda. The authors show in multivariable analyses that victimization was associated with greater depression symptom severity ( $b = 0.17$ ; 95% CI = [0.02, 0.33]) and lower mental health-related quality of

life ( $b = -5.65$ ; 95% CI =  $[-9.34, -1.96]$ ), as well as increased risks for probable depression (adjusted relative risk [ARR] = 1.58; 95% CI =  $[1.01, 2.49]$ ) and heavy drinking (ARR = 3.99; 95% CI =  $[1.84, 8.63]$ ). For Nuttbrock et al [27], examined gender abuse and depressive symptoms as risk factors for HIV and other sexually transmitted infections (HIV/STI) among male-to-female transgender persons (MTFs), the psychological vulnerability of younger MTFs to gender abuse apparently causes them to engage in high-risk sexual behavior and ultimately become HIV/STI infected.

Brandt et al [28] show that there was a significant interaction between depressive symptoms and emotion dysregulation in relation to HIV symptoms, HIV medication adherence due to medication side effects, avoidant coping, and distress tolerance. The form of the interaction indicated that patients live with HIV experiencing higher depressive symptoms and higher levels of emotion dysregulation reported the highest levels of HIV symptoms and lowest levels of distress tolerance. Additionally, results indicated that at lower levels of depressive symptoms, very high levels of emotion dysregulation predicted higher rates of medication nonadherence, whereas at higher levels of depressive symptoms, very high levels of emotion dysregulation predicted the lowest rates of medication nonadherence.

Higher counts of activated T cells were associated with fewer depression symptoms measured 12 months later in adjusted analysis in cohort [29]. These finding may be related to the fact that initiation of depression treatment is associated with better ART adherence in persons living with HIV/AIDS [30]. Recent meta-analysis across 95 samples found depressive symptoms were significantly related to ART nonadherence [31]. Patients who dropped out of ART for  $\geq 12$  months (Lost-to-Care, LTCs) had higher viral loads and depression, lower CD4+ counts, more alcohol, heroin, and injection drug use in the past 30 days [32]. On the other hand, persons with HIV and mental illness may be at risk for poor

treatment adherence, development of treatment-resistant virus, and worse outcomes [33].

## Conclusion

Therefore, the increased risk for HIV infections among persons with serve mental illness and the disproportionate burden of disease it represents for these people require more attention and more effective individualized treatments [23], since depression has a significant negative impact for HIV-infected patients, reducing their adherence to ART treatment, quality of life, treatment outcome, and functionality. In addition to hastening HIV disease progression and mortality, depression further may facilitate viral transmission contributing to a cycle of reinforcement between depression and HIV illness [13]. Thus, screening of depression should be conducted regularly to provide a full psychiatric profile to decrease the risk of depression and improve quality of life in this population [34]. Social support for HIV-infected patients that includes treatment for depression and substance abuse is likely to pay dividends in the form of lower non-AIDS mortality [35].

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